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EXAMINER	
CARDENAS NAVIA, JAIME F	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/694,737	TSAI, ROGER YEN-LUEN	
	Examiner	Art Unit	
	JAIME F. CARDENAS NAVIA	4182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This **NON-FINAL** office action is in response to applicant's submission filed on October 29, 2003. Currently, claims 1-7 are pending.

Drawings

2. **The drawings are objected to** under 37 CFR 1.83(a) because they fail to show the yellow line, which is the weighted average of the ratios in history (Figure 8), as described in the specification (p. 7, lines 19-20). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. **The disclosure is objected to** because of the following informalities: “decision” should be changed to “decision<u>s</u>” (p. 4, line 20). "Making accurate forecast" should be changed to "Making *<u>an</u>* accurate forecast" (p. 4, line 23).

Appropriate correction is required.

Claim Objections

4. **Claims 4, 5, and 7 are objected to** because of the following informalities:

Regarding claim 4, "using" should be changed to "us*es*".

Regarding claims 5 and 7, "selecting a forecast having a smallest error" should be changed to "selecting *the* forecast having *the* smallest error". Additionally, "outputting a selected forecast" should be changed to "outputting *the* selected forecast".

Regarding claim 7, in the outputting step, "an optimum forecast" should be changed to "*the final* optimum forecast".

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 4-7 are rejected** under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, "generating a forecast from Load (*L*) and Ship (*S*) as $CA_{LS,CRAD}$" should be changed to "generating a forecast from Load (*L*) and Ship (*S*) *and CRAD* as $CA_{LS,CRAD}$".

Regarding claims 5 and 7, it is unclear by whom, when, and how the "predetermined period" is determined.

Additionally, "eliminating any other forecast due to expert knowledge" could be interpreted as "all remaining forecasts are eliminated due to expert knowledge".

"Expert" is a relative term, which renders the claim indefinite. The term is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

CA_L, CA_S, and CA_{LS} are not defined in the claims and so lack antecedent basis, and CA_{hist} is defined as an indicator rather than a model. Claims should be amended to address this deficiency.

Regarding claim 6, in the implementing step, "Customer Acceptance (CA)" should be changed to "Customer Acceptance history (CA_{hist})".

In the implementing step, applicant is seeking to claim using any combination of up to three of the four sources of information. Not all of these combinations are supported by the specification, and a forecast implementing all four sources of information is claimed. Examiner suggests applicant removes this indefinite language from the claim.

In the implementing step, $CA_{LS,CRAD}$ is used and has a different meaning than it did when it was used in claims 4 and 5. Claim should be amended to make this distinction clear.

In the implementing step, the language "more accurate" should be removed because examiner does not believe this to always be true. If the forecasts using CRAD were always more accurate, then what would be the purpose of generating non-CRAD forecasts?

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claim 1 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Chappel (US 7,236,940 B2) in view of Hsu et al. (US 2004/0254825 A1).

Regarding claim 1, Chappel teaches:

A computer implemented best indicator adaptive method for demand forecasting (col. 3, lines 39-44) comprising the steps of:

implementing a plurality of forecasting subsystems which make use of one or more different indicators (col. 3, lines 39-44);

generating forecasts based on one or more of said indicators (col. 3, lines 39-49);

selecting a single composite forecast model for demand forecasting of a product (col. 3, lines 64-67, col. 4, lines 1-5).

Chappel does not teach refining the forecasts based on distribution demand.

Hsu teaches refining the forecasts based on distribution demand (par. 16, lines 1-8).

The inventions of Chappel and Hsu pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Hsu does not teach away from or contradict Chappel, but rather, teaches a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in

the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the teaching of Hsu of forecasting demand using distributed demand as well as at least one indicator (par. 16, lines 1-8, customer requested due date is distribution demand, consumption data is an indicator).

9. **Claims 2-5 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Chappel (US 7,236,940 B2) in view of Hsu et al. (US 2004/0254825 A1), further in view of Sankaran et al. (US 2002/0133444 A1) and Scheer (US 2002/0161674 A1).

Regarding claim 2, neither Chappel nor Hsu teach wherein the different indicators used by the plurality of forecasting subsystems include Load (L), Ship (S) and Customer Acceptances history (CA_{hist}).

Sankaran teaches wherein the different indicators used by the plurality of forecasting subsystems include Load (L) and Ship (S) (par. 94, lines 1-7, book-to-bill ratio is the load to ship ratio, as evidenced by Weinreb (US 2007/0162365 A1), par. 593).

Scheer teaches wherein the different indicators used by the plurality of forecasting subsystems include Customer Acceptances history (CA_{hist}) (par. 25, lines 1-4, par. 26, lines 1-9).

The inventions of Chappel, Hsu, Sankaran, and Scheer pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Sankaran and Scheer do not teach away from or contradict Chappel and Hsu, but rather, teach a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it

would have been obvious to combine the teachings, motivated by the teaching in Chappel of using historical information or data of a business, for example, as an indicator (col. 4, lines 21-22).

Regarding claim 3, neither Chappel nor Hsu teach wherein the step of generating forecasts includes the steps of:

generating a forecast from Load (L);

generating a forecast from Ship (S);

generating a forecast from Load and Ship (LS);

and generating a forecast from Customer Acceptances history (CA_{hist}).

Sankaran teaches wherein the step of generating forecasts includes the steps of:

generating a forecast from Load (L) (par. 94, lines 1-7);

generating a forecast from Ship (S) (par. 94, lines 1-7);

generating a forecast from Load and Ship (LS) (par. 94, lines 1-7);

Scheer teaches wherein the step of generating forecasts includes the step of:

generating a forecast from Customer Acceptances history (CA_{hist}) (par. 25, lines 1-4, par. 26, lines 1-9).

The inventions of Chappel, Hsu, Sankaran, and Scheer pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Sankaran and Scheer do not teach away from or contradict Chappel and Hsu, but rather, teach a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it

would have been obvious to combine the teachings, motivated by the teaching in Chappel of using historical information or data of a business, for example, as an indicator (col. 4, lines 21-22).

Regarding claim 4, Chappel does not teach wherein the step of refining the forecasts based on distribution demand uses Customer Requested Date (CRAD) and includes the steps of:

generating a forecast from Load (*L*) and CRAD as $CA_{L,CRAD}$;

generating a forecast from Ship (S) and CRAD as $CA_{S,CRAD}$; and

generating a forecast from Load (L) and Ship (S) and CRAD as $CA_{LS,CRAD}$.

Hsu teaches wherein the step of refining the forecasts based on distribution demand uses Customer Requested Date (CRAD) and includes the step of:

generating a forecast from a plurality of consumption data and CRAD (par. 16, lines 1-8).

Sankaran teaches:

generating a forecast from Load (L) (par. 94, lines 1-7);

generating a forecast from Ship (S) (par. 94, lines 1-7);

generating a forecast from Load (L) and Ship (S) (par. 94, lines 1-7);

The inventions of Chappel, Hsu, and Sankaran pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Sankaran does not teach away from or contradict Chappel and Hsu, but rather, teach a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to

combine the teachings, motivated by the teaching in Chappel of using historical information or data of a business, for example, as an indicator (col. 4, lines 21-22).

Regarding claim 5, Chappel teaches wherein the step of selecting a single composite forecast model for demand forecasting of a product includes the steps of:

for each forecast (specific forecasts are addressed above regarding claims 3 and 4), determining a forecast error (col. 5, lines 52-56, col. 7, lines 41-47);

eliminating a forecast (specific forecasts are addressed above regarding claims 3 and 4) if data is for a historical period shorter than a predetermined period (col. 4, lines 22-25, col. 5, lines 50-52, if data for any model is shorter than a predetermined period, then according to the rules of the program, it will be found statistically invalid because of its small sample size and so will not be recommended);

eliminating any other forecast due to expert knowledge (col. 4, lines 22-27, col. 26, lines 27-30);

presenting statistically valid models and their associated errors (col. 5, lines 52-56).

Chappel does not teach wherein the step of selecting a single composite forecast model for demand forecasting of a product includes the steps of:

for all remaining forecasts, selecting the forecast having the smallest error; and

outputting the selected forecast as an optimum forecast.

Common sense teaches:

for all remaining forecasts, selecting the forecast having the smallest error; and

outputting the selected forecast as an optimum forecast.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the advantage of a single optimum forecast rather than multiple statistically valid forecasts.

10. **Claims 6 and 7 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Chappel (US 7,236,940 B2) in view of Sankaran et al. (US 2002/0133444 A1), Scheer (US 2002/0161674 A1), Hsu et al. (US 2004/0254825 A1), and Eli Berl Illion (US 2005/0060164 A1).

Regarding claim 6, Chappel teaches:

implementing a plurality of forecasting subsystems (col. 3, lines 39-44);

eliminating candidates based on dependency of forecast error of individual candidates on length of historical data (col. 4, lines 22-25, col. 5, lines 50-52).

Chappel does not teach:

forecasting Customer Acceptances (CA) based on Load (L) to generate CA_L;

forecasting Customer Acceptances (CA) based on Ship (S) to generate CA_S;

forecasting Customer Acceptances (CA) based on Load (L), Ship (S) and Customer Acceptances history (CA_{hist},) to generate CA_{LS};

using a log mean to sigma ratio of CRAD distribution, adjusting the forecasts CA_L, CA_S and CA_{LS} to arrive at more accurate forecasts $CA_{L,CRAD}$, $CA_{S,CRAD}$, and $CA_{LS,CRAD}$; and

using adaptive optimization, selecting a final optimum forecast with a smallest mean average percent historical error specific to geography and product grouping.

Sankaran teaches:

forecasting Customer Acceptances (CA) based on Load (*L*) to generate CA_L (par. 94, lines 1-7);

forecasting Customer Acceptances (CA) based on Ship (*S*) to generate CA_S (par. 94, lines 1-7);

forecasting Customer Acceptances (CA) based on Load (*L*) and Ship (*S*) (par. 94, lines 1-7).

Scheer teaches forecasting Customer Acceptances (CA) based on Customer Acceptances history (CA_{hist},) (par. 25, lines 1-4, par. 26, lines 1-9);

The inventions of Sankaran and Scheer pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Scheer does not teach away from or contradict Sankaran, but rather, teaches a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the teaching in Scheer of using CA_{hist} along with deterministic and advance demand data (par. 27, lines 1-5, par. 40, lines 12-18).

Hsu teaches generating a forecast from a plurality of consumption data and CRAD (par. 16, lines 1-8).

Official notice is given that using a log mean to sigma ratio was a matter of common knowledge to one skilled in the art at the time of applicant's invention, as evidenced by Ohno et al. (US 2006/0246436 A1), par. 38, lines 1-5.

The inventions of Hsu, Sankaran, and Scheer pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Hsu does not teach away from or contradict Sankaran and Scheer, but rather, teaches a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the teaching of Hsu of generating a forecast using a plurality of consumption data and CRAD (par. 16, lines 1-8).

The inventions of Hsu, Sankaran, Scheer and Chappel pertain to forecasting demand. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, as Hsu, Sankaran, Scheer does not teach away from or contradict Chappel, but rather, teach a function that was not addressed. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the teaching in Chappel of using historical information or data of a business, for example, as an indicator (col. 4, lines 21-22) and the teaching in Chappel of running non-linear forecasts with logarithmic transformations (col. 8, lines 3-4).

Eli Berl Illion teaches using data specific to geography and product grouping (par. 68, lines 7-8).

Common sense teaches using adaptive optimization, selecting a final optimum forecast with a smallest mean average percent historical error.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the teaching in Chappel that all statistically valid models are presented along with their associated errors (col. 5, lines 52-56) and the advantage of a single optimum forecast rather than multiple statistically valid forecasts.

Regarding claim 7, Chappel teaches wherein the step of selecting a single composite forecast model for demand forecasting of a product includes the steps of:

for each forecast (specific forecasts are addressed above regarding claims 3 and 4), determining a forecast error (col. 5, lines 52-56, col. 7, lines 41-47);

eliminating a forecast (specific forecasts are addressed above regarding claims 3 and 4) if data is for a historical period shorter than a predetermined period (col. 4, lines 22-25, col. 5, lines 50-52, if data for any model is shorter than a predetermined period, then according to the rules of the program, it will be found statistically invalid because of its small sample size and so will not be recommended);

eliminating any other forecast due to expert knowledge (col. 4, lines 22-27, col. 26, lines 27-30);

presenting statistically valid models and their associated errors (col. 5, lines 52-56).

Chappel does not teach wherein the step of selecting a single composite forecast model for demand forecasting of a product includes the steps of:

for all remaining forecasts, selecting the forecast having the smallest error; and

outputting the selected forecast as an optimum forecast.

Common sense teaches:

for all remaining forecasts, selecting the forecast having the smallest error; and

outputting the selected forecast as the final optimum forecast.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions. Additionally, the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to combine the teachings, motivated by the advantage of a single optimum forecast rather than multiple statistically valid forecasts.

Conclusion

11. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Li et al. (US 2005/0075920 A1) teaches forecasting demand based on weighting factors and previous demand.

Menninger (US 2003/0088449 A1) teaches forecasting demand based on past and real-time sales.

Nephew et al. (US 2007/0192160 A1) teaches forecasting demand based on current demand, unsatisfied demand, and expected shipping date.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAIME F. CARDENAS NAVIA whose telephone number is (571)270-1525. The examiner can normally be reached on Mon-Fri, 7:30AM - 5:00PM EST, Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on (571) 272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 30, 2008

/JAIME CARDENAS-NAVIA/
Examiner, Art Unit 4182

/Thu Nguyen/
Supervisory Patent Examiner, Art Unit 4182